

**10006771-3****10/618.171****REMARKS**

This is a full and timely response to the non-final Official Action mailed **August 10, 2007**. Reconsideration of the application in light of the following remarks is respectfully requested.

**Claim Status:**

Claims 1-11 were withdrawn and cancelled without prejudice or disclaimer under a previous Restriction Requirement. Claims 19-24 were also withdrawn under a previous Restriction Requirement. To expedite the prosecution of this application, withdrawn claims 19-24 are cancelled by the present paper without prejudice or disclaimer. Applicant reserves the right to file continuation or divisional applications as permitted by 37 C.F.R. to the withdrawn and cancelled claims or to any other subject matter described in the present application.

Claims 12-18 and 25-37 are currently pending for further action.

**Prior Art:**

Claims 12-17, 25-32 and 34-37 were rejected under 35 U.S.C. § 102(b) by U.S. Patent No. 5,631,099 to Hockaday ("Hockaday"). For at least the following reason, this rejection is respectfully traversed.

Claim 27 recites:

A fuel cell having first and second flexible circuits comprising;  
*a first flexible substrate comprising an anode;*  
*a porous layer at said anode having pores for distributing fuel to said anode*  
*using capillary action;*

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a catalyst disposed on said porous layer; and  
*a second flexible substrate comprising a cathode.*  
(Emphasis added).

In contrast, Hockaday is totally inapposite to the fuel cell of claim 27.

First, claim 27 recites two, “first” and “second,” flexible substrates that respectively comprise an anode and a cathode. In contrast, Hockaday contains no such teaching. To the contrary, Hockaday teaches “fuel cells [that] are produced as a non-bipolar series of cells on a single thin flexible layer.” (Hockaday, col. 4, lines 55-56) (emphasis added). Thus, Hockaday does not teach or suggest the claimed first and second flexible substrates that respectively comprise an anode and a cathode. To the contrary, Hockaday teaches away from this subject matter by expressly teaching the formation of fuel cells on a “single” substrate.

Second, claim 27 further recites “a porous layer at said anode having pores for distributing fuel to said anode using capillary action.” The Office Action fails to specifically indicate how or where Hockaday is thought to teach this subject matter. In actuality, Hockaday again teaches away from the claimed porous layer having pores for distributing fuel to an anode using capillary action. Hockaday teaches that a “hydrophobic film is deposited over the electrode films to control electrolyte positioning and to strengthen the electrodes.” (Hockaday, abstract). Thus, Hockaday teaches a film that would prevent a liquid fuel that is distributed by “capillary action” from ever reaching the anode electrode. This is the exact opposite of the porous layer disclosed by Applicant and recited in claim 27. The Hockaday fuel cell would be inoperative with a fuel that is distributed by capillary action as claimed. Rather, the Hockaday cell requires a *gaseous* fuel that can penetrate the hydrophobic membrane (19) to the anode. (Hockaday, col. 4, lines 10-11).

Consequently, Hockaday fails to teach or suggest, and actually teaches away from, (1) the claimed first and second flexible substrates comprising, respectively, an anode and

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cathode, and (2) the claimed "porous layer at said anode having pores for distributing fuel to said anode using capillary action."

"A claim is anticipated [under 35 U.S.C. § 102] only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987). See M.P.E.P. § 2131. For at least these reasons, the rejection based on Hockaday of claim 27 and its dependent claims should be reconsidered and withdrawn.

Claim 12 similarly recites:

A flex-based fuel cell, comprising:  
*a first flexible circuit*; comprising:  
    a first flexible substrate, and  
    *a porous layer, wherein the porous layer comprises a plurality of pores oriented to distribute fuel to a catalyst using a capillary action*; and  
    *a second flexible circuit adjacent the first flexible substrate circuit*, wherein  
the first and the second flexible circuits are conformable to a substantially non-planar shape.  
(Emphasis added).

In contrast, as demonstrated amply above, Hockaday does not teach or suggest, and teaches away from, the claimed fuel cell including "a first flexible circuit" and "a second flexible circuit adjacent the first flexible substrate circuit." There is no such teaching or suggestion in Hockaday.

Additionally, as also demonstrated above, Hockaday, does not teach or suggest, and teaches away from, the claimed fuel cell including "a porous layer, wherein the porous layer comprises a plurality of pores oriented to distribute fuel to a catalyst using a capillary action." Hockaday cannot teach or suggest this subject matter or the Hockaday system is inoperative.

Again, "[a] claim is anticipated [under 35 U.S.C. § 102] only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single

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prior art reference.” *Verdegaal Bros. v. Union Oil Co. of California*, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987). See M.P.E.P. § 2131. For at least these reasons, the rejection based on Hockaday of claim 12 and its dependent claims should be reconsidered and withdrawn.

Additionally, various dependent claims of the application recite subject matter that is further patentable over the cited prior art. Specific, non-exclusive examples follow.

Claim 13 recites “a proton exchange membrane between said first and second flexible circuits.” Claim 28 recites similar subject matter. However, because Hockaday does not teach or suggest the claimed first and second flexible circuits, Hockaday cannot teach or suggest a proton exchange membrane disposed between two such flexible circuits.

Claim 14 recites “a channel comprising deionized water between said first and second flexible circuits.” Claim 29 recites similar subject matter. However, because Hockaday does not teach or suggest the claimed first and second flexible circuits, Hockaday cannot teach or suggest a channel comprising deionized water disposed between two such flexible circuits.

Claim 37 recites “wherein said porous layer comprises a first porous layer disposed on said first flexible substrate and a second porous layer disposed on said second flexible substrate.” In contrast, Hockaday does not teach or suggest this subject matter.

For at least these additional reasons, the rejection of these dependent claims should be reconsidered and withdrawn.

Claims 18 and 33 were rejected under 35 U.S.C. § 103(a) over the combined teachings of Hockaday and U.S. Patent No. 6,197,145 to Todd et al. (“Todd”). This rejection is respectfully traversed for at least the same reasons given above with respect to the patentability of claims 12 and 27.

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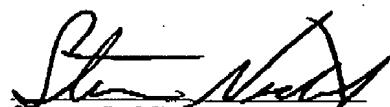
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Conclusion:

In view of the following arguments, all claims are believed to be in condition for allowance over the prior art of record. Therefore, this response is believed to be a complete response to the Office Action. However, Applicants reserve the right to set forth further arguments supporting the patentability of their claims, including the separate patentability of the dependent claims not explicitly addressed herein, in future papers. Further, for any instances in which the Examiner took Official Notice in the Office Action, Applicants expressly do not acquiesce to the taking of Official Notice, and respectfully request that the Examiner provide an affidavit to support the Official Notice taken in the next Office Action, as required by 37 CFR 1.104(d)(2) and MPEP § 2144.03.

If the Examiner has any comments or suggestions which could place this application in even better form, the Examiner is requested to telephone the undersigned attorney at the number listed below.

Respectfully submitted,



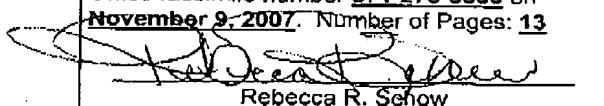
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